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| 10/586,396 | 05/29/2007 | Tamami Maruyama | 293722US8PCT | 2541 |
| 22850 7590 04/08/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | |
| EXAMINER VINCENT, DAVID ROBERT | | | | |
| ART UNIT 2129 | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/586,396

Applicant(s)

MARUYAMA ET AL.

Examiner

DAVID R. VINCENT

Art Unit

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-11 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/22)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang (US 6,567,049).

Huang discloses:

1. A maze generation method for generating a maze (Figs. 11-12), using a genetic algorithm (abstract), the method comprising the steps of:

generating blocks by dividing a given plane into given shapes (e.g., Figs. 11-12; C4, L45-55); setting reference point blocks (not further defined, C4, L45-55) for setting walls (e.g., Figs. 11-12) in alternate blocks of the generated blocks; assigning, to the reference point blocks, chromosomes for determining ways to set walls in blocks contiguous on one side to the reference point blocks (C4, L45-55); and

searching for an optimum chromosomes to be assigned to the reference point blocks by the genetic algorithm to generate an optimum maze (Fig. 6; C5, L1-34).

2. An antenna optimum design method for designing a structure of an antenna having a structure in which a metal patch (C2, L1-19; C5, L31-33) is placed on an antenna element plane (C1-2), using

a genetic algorithm (abstract; summary), the method comprising the steps of:

generating blocks by dividing the metal patch on the antenna element plane into given shapes (e.g., Figs. 8-12; C4, L45-55);

setting reference point blocks in alternate blocks (not further defined does not specify only alternate blocks) of the generated blocks (reads on, C4, L45-55);

assigning, to the reference point blocks (C4, L45-55), chromosomes for determining ways to arrange metal patches in blocks contiguous (Fig. 8-12) on one side to the reference point blocks;

calculating characteristics of the antenna uniquely determined by the chromosomes (e.g., evaluating fitness of a GA; using the simulation tool, C1, L1-17; C4, L60-67; C5, L14-19; return loss, C6, 50-62); and

searching for an optimum chromosomes to be assigned to the reference point blocks by the genetic algorithm to optimize the antenna characteristics (e.g., C4, L45-67; C5, L1-34; Fig. 6, especially item 706).

4. The antenna optimum design method as set forth in claim 2, wherein: the antenna includes a ground plane with a metal

surface (Figs. 1-2; C2, L1-19); a short-circuit element for short-circuiting the metal patch on the antenna element plane and the metal surface on the ground plane (inherent of this type of network, C2, L1-19); and a feed point connected to the ground plane for feeding the metal patch on the antenna element plane (inherent of this type of network, C1, L1-18; C2, L1-19; Figs. 1-2); and the metal patch is placed in a block to which the short-circuit element and the feed point are connected (e.g., C2, L1-19, Figs. 1-5).

5. The antenna optimum design method as set forth in claim 2, wherein: the antenna includes a ground plane with a metal surface (Figs. 1-2; C2, L1-19), and a short-circuit element plane with a metal patch placed on a surface thereof; the metal patch placed on the short-circuit element plane constitutes a short-circuit element for short-circuiting the metal patch on the antenna element plane and the metal surface on the ground plane (inherent of this type of network, C2, L1-19); and the metal patches on the antenna element plane and the short-circuit element plane are divided into given shapes to generate blocks in the block generating step (e.g., C2, L1-19, Figs. 1-5, 7-8, 11-12).

6. The antenna optimum design method as set forth in claim 5, wherein: the antenna includes a feed point with a central conductor connected to the metal patch on the antenna element plane and an outer conductor connected to the metal surface on the ground plane (e.g., C2, L1-19, Figs. 1-2); and the chromosomes include a position coordinate of the feed point on the short-circuit element plane (e.g., C2, L1-63, Figs. 1-2, 6, 8-10).

7. The antenna optimum design method as set forth in claim 2, wherein return loss characteristics and gain characteristics at multiple frequencies are used as the antenna characteristics (Figs. 14-25 and respective disclosure, e.g., C6, L50-62; simulation, C1, L1-17; evaluation, C4, L60-67; simulation, C5, L14-19).

8. The antenna optimum design method as set forth in claim 2, wherein when it is decided that metal patches in all blocks surrounding a given block be removed in the step of determining ways to arrange metal patches, it is decided that a metal patch in the given block be removed (Figs. 4, 6, or 11-13 and respective disclosure).

9. The antenna optimum design method as set forth in claim 2, wherein when it is decided that metal patches in all blocks surrounding a given block not be removed in the step of determining ways to arrange metal patches, it is decided that a metal patch in the given block not be removed(Figs. 4, 6, or 11-13 and respective disclosure; C4, L45-67; C5, L1-34).

10. A program for implementing an antenna optimum design method as set forth in claim 2 (inherent that the genetic algorithm is not done by hand but by a computer program, program flowchart, Fig. 6; C1, L1-17).

11. An antenna designed by an antenna optimum design method as set forth in claim 2 (C2, L30-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang as applied to claims 1-2 above, and further in view of Jakiela et al. (Continuum structural topology design with genetic algorithms, pp:339-356).

However, Huang fails to particularly call for unfed elements.

Jakiela teaches:

3. The antenna optimum design method as set forth in claim 2, wherein: the antenna includes an unfed element plane formed in parallel with the antenna element plane (elements not fed with current/energy removed, Fig. 4), with a metal patch placed on a surface thereof; and the metal patches on the antenna element plane and the unfed element plane are divided into given shapes in the block generating step (e.g., Fig. 4, pg. 343, section 4.4).

It would have been obvious to combine the two references for the purpose of eliminating unfed elements because they can affect the transfer function or properties of the network of the microstrip type circuit. Any extra metal would affect the characteristics of the high or L-band frequency circuit. One of ordinary skill would know that the width of a transmission line relates to resistance/impedance of the transmission line. Going on a diagonal (pp: 343) would clearly not be acceptable.

Examiner Notes

The examiner has considered the applicant's claims in light of the disclosure. However, the examiner respectfully reminds the applicant that **"during examination, the claims must be interpreted as broadly as their terms reasonably allow"**. (In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d (Fed. Cir. 1997; MPEP 2111.01 [R-5] I).

Note that *"limitations appearing in the specification will not be read into the claims, and ... interpreting what is meant by a word in a claim is not to be confused with adding an extraneous limitation appearing in the specification, which is improper."* Intervet Am., v. Kee-Vet Labs., 887 F.2d 1050, 1053, 12 USPQ2d 1474 1476 (fed. Cir. 1989).

"The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips v. AWH Corp., 415 F.3d 1303, 1313, 75 USPQ2d 1321, 1326 (fed. Cir. 2005).

"One purpose for examining the specification is to determine if the patentee has limited the scope of the claims.'... For example, an inventor may choose to be his own lexicographer is he defines the specific terms used to describe the invention' with reasonable clarity, deliberateness, and precision." Such a definition may appear in the written description, ... or in the prosecution history, ..." Teleflex, Inc. v. Ficosa N. Am Corp., 299 F.3d 1313, 1325, 63 USPQ2d 1374, 1381 (Fed. Cir. 2002).

Prior art pertinent to the disclosed invention is also cited and Applicants are reminded that they *must consider all*

cited art under Rule 111(c) when amending the claims to conform with 35 U.S.C. 112.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David R. Vincent whose telephone number is (571) 272-3080.

Any response to this action should be mailed to:

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Washington, D. C. 20231;

Hand delivered to:

Receptionist,
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401 Dulany Street,
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(located on the first floor of the south side of the
Randolph Building);or

faxed to:

(571) 272-3150 (for formal communications intended for entry.)

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/David R Vincent/

Primary Patent Examiner, Art Unit 2129